WORKSHOP NOTICE WITH AGENDA, WebEx & CONFERENCE CALL INFORMATION

Public Workshop Notice: Energy Division Workshop in accordance with Track 1 of Proceeding - R.15-03-011

Date: July 28, 2015
Time: 9:30 AM (PST)

California Public Utilities Commission
505 Van Ness Avenue. CPUC **HEARING ROOM A**[1]
(Corner of Van Ness Avenue and McAllister Street)
San Francisco

Conference Phone Line: 866-830-4003
Participant Code: 9869619

WebEx information:

Go to https://van.webex.com/van/j.php?MTID=m493c9613060830fa975fbe289d7e986d
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Meeting Number: 744 495 587
Meeting Password: !Energy1

Objective of the workshop is to: (1) identify best practices, challenges, and lessons learned from the recent energy storage procurement cycle including adjustments to future RFO processes, as needed, (2) identify and discuss potential refinement of energy storage Consistent Evaluation Protocol (CEP), and (3) present Energy Division's plan to evaluate the Energy Storage Framework.

ENERGY STORAGE WORKSHOP AGENDA

Introduction- Energy Division	9:30 AM – 9:45 AM
Energy Storage Procurement Best Practices Identify challenges, what worked, what didn't work and lessons learned from the recent energy storage procurement cycle and, if needed, consider potential adjustments to future RFO processes.	
1) IOU Presentations *Speakers: PG&E, SCE and SDG&E* a) Current RFO Process – lessons learned i) Summarize the RFO process – what worked? What didn't work? b) Changes to future procurement cycles - process improvement i) What process improvements will the IOUs incorporate prior to 2016-bid cycle? (Release Pro Forma Contract forms, do a RFI,	9:45 AM – 10:45 AM

[1] The venue has moved from the Auditorium, which was earlier notified in the Commission's Daily Calendar, to Hearing Room A (Seating Capacity 80).

timeline, etc.) ii) Interconnection requirements – should the interconnection study requirement be prescriptive to enable participation in the RFO process? iii) Should IOUs provide more detail on performance use-case specifications for targeted grid domain procurement?	
2) Market Readiness *Speakers: Joint IOU representation and CESA* a) Identify gaps in market regulation and rules b) Identify stakeholder initiatives and proceedings to bridge the gaps	10:45 AM – 11:15 AM
3) Industry Perspectives *Speakers from: CESA, Clean Coalition and AES* a) Best Practices and lessons learned i) What worked? What didn't work? ii) Experience with grid domain target use-case specification? b) Changes to future procurement cycles - process improvement i) What process improvements should the IOUs incorporate prior to future bid cycles? (RFIs, pro forma contract form, timeline, etc.) ii) Interconnection requirements – should the interconnection study requirement be prescriptive to enable participation in the RFO process? iii) Performance Specifications – what level of detailed use case specification is desired in future RFO procurement cycles? c) Transparency – what level of data transparency is desired and how will that information be used without compromising market competitiveness and IOU solicitation process?	11:15 AM – 12:00 PM
4) Independent Evaluator – Benchmarking Storage Procurement *Speaker: Wayne Oliver (IE)* a) Was the procurement process robust? Were the requirements clear for market participants? b) Should some RFO requirements be benchmarked across IOUs? c) What level of transparency should be allowed to create a competitive market? How can that transparency be achieved without comprising confidentiality?	12:00 PM – 12:30 PM
LUNCH	12:30 PM – 1:30 PM
Refining Consistent Evaluation Protocol (CEP) for Energy Storage Should we consider refinements to [CEP] and valuation methodologies used by IOUs to support CPUC decisions on storage procurement and make models publicly available? And if so, what and how?	
1) EPRI Presentation EPRI will provide an overview of their efforts to develop publicly available software that assesses costs and benefits and guides the optimization of energy storage projects with respect to use, technology, size, and location. The project is funded by the Energy Commission through PON-13-302 of the Electric Program Investment Charge (EPIC).	1:30 PM – 2:00 PM
2) Joint IOU Presentation on CEP a) Define qualitative and quantitative requirements/ indices in the	2:00 PM – 2:30 PM

protocol b) Explain how GHG emissions are accounted for in the model c) Evaluating environmental impacts of recycling energy storage batteries after it has run its useful life d) Updates on publically available forecasts, such as ancillary services, discount rates, system loss factors, etc.	
3) Industry/ Environmental / Consumer Perspectives - Suggested alterations to the current protocols *Speakers: TURN, Sierra Club and GPI*	2:30 PM – 3:15 PM
BREAK – let's move!	3:15 PM – 3:30 PM
Energy Division presentation Plan to evaluate the Energy Storage Framework (see Appendix A)	3:30 PM – 4:45 PM

Other Information:

For procedural details relating to the proceeding (R.15-03-011), commenting and the record development process, and the role of this workshop within the proceeding, please refer to the "Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judge," issued on June 12, 2015. The memo can be found at this link:

http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M152/K484/152484522.PDF

The subsequent "Administrative Law Judge's Ruling Modifying Track 1 Schedule," issued on June 19, 2015, can be accessed via the following link:

http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M152/K869/152869416.PDF

The contact person regarding this workshop is Manisha Lakhanpal of the Commission's Energy Division. She can be reached at ml2@cpuc.ca.gov or at 415-703-5905.

Appendix A

Purpose and Brief Description of Energy Division's plan to evaluate the Energy Storage Framework

A. Summary

Pursuant to Commission Decision (D.) 13-10-040, Energy Division is tasked with conducting a comprehensive program evaluation of the Energy Storage (ES) Framework by no later than 2016, and every three years thereafter.[2] In order to meet this requirement Energy Division Staff will issue a request for proposal to hire a consultant to design a comprehensive measurement and evaluation framework and carry out an evaluation of ES Framework and Program Design. Because energy storage can interact with the electric grid in a variety of ways, measuring and evaluating an emerging energy storage market framework is a complex process. Despite this complexity, California has pioneered energy storage procurement targets, set standards and created markets for various storage grid domains. Therefore, it becomes essential that regulators and stakeholders learn from market transformation of energy storage.

The evaluation framework will be developed to collect and analyze data on operational cost-effectiveness and best practices for safety of storage systems. Additionally, much-awaited results of energy storage's first procurement cycle will yield valuable lessons: While much has been done in setting an initial procurement target and identifying economic and regulatory barriers in the California's Energy Storage Roadmap, the program evaluation framework will help regulators assess how well current processes and the storage procured meets the stated purposes[3] of the Storage Framework.

B. Background and Purpose

On September 29, 2010, Governor Brown signed Assembly Bill (AB) 2514, which required the CPUC, by March 1, 2012, to open a proceeding to determine appropriate

[2] See, D.13-10-040 at 11-12.
[3] See, D.13-10-040, Guiding Principles and Policy on Page 1.

targets, if any, for each load-serving entity to procure viable and cost-effective **energy storage systems** and, by October 1, 2013, to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by each load-serving entity by December 31, 2015, and a 2nd target to be achieved by December 31, 2020.[4] AB 2514 also requires the Commission to reevaluate the determinations made not less than once every three years.[5]

The Commission opened a rulemaking proceeding (R.10-12-007), to establish an energy storage framework and set storage procurement targets.[6] On October 17, 2013, the Commission approved D.13-10-040, which established storage procurement targets and policies for load serving entities (utility and non-utility). The Commission also ordered Energy Division Staff to conduct a comprehensive evaluation of the Energy Storage Procurement Framework and Design Program by no later than 2016, and submit a report to the Commission.[7]

The Decision authorizes an annual budget of approximately $500,000, which is to be collectively funded by the three IOUs and to be reimbursed through the regular budget process. The allotment of funds allows Energy Division Staff to oversee the evaluation and analysis of the program and hire consultants for this purpose. The decision also states that the costs of the $500,000 budget should be shared by the IOUs according to their proportional share of peak load, and collectable from ratepayers starting in 2015 (such that the maximum budget available for evaluation is $500,000 per year for 6 years, or $3 million, unless modified).

C. Program Evaluation Scope and Requirements

It is important to have a framework in place prior to evaluating best practices and challenges within the storage procurement process. The evaluation framework will

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[6] A target of 1.3 GW of ES capacity for the three IOUs to be procured by 2020.
[7] See, D.13-10-040, ordering para. 6.

follow the guiding principles from D.13-10-040,[8] which states that we conduct a comprehensive evaluation of the Storage Framework by no later than 2016, and every three years thereafter. It also offers guidance on issues that an evaluation process should investigate and assess, which are:

1. Whether the energy storage procured pursuant to this proposal meets the stated purposes of optimizing the grid, integrating renewables, and/or reducing greenhouse gas emissions;
2. Progress toward market transformation;
3. Learnings from collection, analysis, and reporting of energy storage operational data; and
4. Learnings from collection, analysis, and reporting of the cost-effectiveness of the energy storage systems procured, with attention to data confidentiality.
5. Best practices for the safe operation of energy storage technologies.

Energy Division Staff will issue an RFP soliciting written proposals to (a) design a an evaluation framework, which will be used to evaluate the Energy Storage Framework and Design Program every three years, and (b) evaluate the overall storage framework based on results to date.

Energy Division Staff anticipates that the Commission will not approve energy storage contracts resulting from the first 2014 procurement cycle until later in 2015. We envision that the consultant will develop an evaluation framework in the first half of 2016, and will evaluate the results during the second half of the year. Few, if any, energy storage procurement projects will be operational at that time, so the initial program evaluation will be more qualitative in scope, and not as comprehensive as subsequent evaluations.

[8] See, D.13-10-040, Section 4.14 on page 66.

D. Developing a Program Evaluation Framework:

Following the guidelines set forth in D.13-10-040, Energy Division Staff plan to issue a request for proposal to set a framework and conduct an evaluation that will involve:

1. Categorizing energy storage procurement process into phases to facilitate designing an evaluation framework and an evaluation plan.
2. Identifying scope, objectives and priorities.
3. Choosing the type of evaluations to be undertaken and data to be collected.
4. Setting research questions and evaluation metrics.
5. Designing an evaluation and a schedule or roadmap for future evaluation cycles
6. Conducting the evaluation and data analysis, and
7. Reporting the results.

E. Stakeholder Engagement

Energy Division Staff envision that the selected evaluation contractor will engage with parties in the energy storage proceeding at several key junctures, and that written feed-back and/or a public workshop on a draft evaluation framework will be conducted prior to it being finalized. Likewise, Energy Division Staff and the evaluation contractor may solicit written feed-back and/or hold a public workshop on a draft version of the evaluation results report.

Energy Storage End Use Cases

Category		Storage 'End Use'
Describes at what point in the value chain storage is being used		Describes what storage is being used for i.e. its application.
ISO/Market	1	Ancillary services: frequency regulation
	2	Ancillary services: spin/ non-spin/ replacement reserves
	3	Ancillary services: ramp
	4	Black start
	5	Real time energy balancing
	6	Energy price arbitrage
	7	Resource Adequacy
Generation	8	Intermittent resource integration: wind (ramp/voltage support)
	9	Intermittent resource integration: photovoltaic (time shift, voltage sag, rapid demand support)
	10	Supply firming
Transmission/ Distribution	11	Peak shaving
	12	Transmission peak capacity support (upgrade deferral)
	13	Transmission operation (short duration performance, inertia, system reliability)
	14	Transmission congestion relief
	15	Distribution peak capacity support (upgrade deferral)
	16	Distribution operation (voltage / VAR support)
Customer	17	Outage mitigation: micro-grid
	18	Time-of-use (TOU) energy cost management
	19	Power quality
	20	Back-up power